

**Dr. Parsons's Report to the Local Government Board on a recent Outbreak of Diphtheria at Queen Camel, in the Wincanton Rural Sanitary District, Somerset.**

GEORGE BUCHANAN,  
Medical Department,  
March 7th, 1888.

In the autumn of 1885 an outbreak of diphtheria occurred at Queen Camel and other places in the neighbourhood, and was inquired into by me for the Board in the following year, but the inquiry was conducted at a disadvantage on account of the length of time which had elapsed since the disease had occurred. Information having been received that diphtheria had again broken out at Queen Camel, I was directed by the Board to inquire into it while the circumstances were yet fresh, and I visited the place on January 30th and 31st, 1888.

On putting myself in communication with Dr. Stockwell, Medical Officer of Health, and with Dr. Hurley of Queen Camel, under whose care the patients had come, I found that there had been up to that date nine cases; and two fresh ones just commencing were met with in the course of my visit; making 11 cases, two of which had been fatal. These cases had occurred in six households, of which five were in the village street and one at an outlying farm.

Queen Camel village, of which the population in 1881 was 542, occupies a low-lying situation, standing on the lias clay, which in part of the village is covered with gravel. It consists mainly of a single street, running north and south, with houses in rows on either side. At the northern end, where the church and school are, the houses are less regularly placed, and there are some cross lanes. The village is drained by stone sewers of very rough construction; their bottom being formed of the bare earth; their walls of dry rubble masonry; and their cover in part by the flags of the pavement, through the chinks of which offensive effluvia can come up. The outfall is into a ditch near the north end of the village, which discharges into a brook called the river Cam. In the southern part of the main street there are two sewers, one on each side of the road, just in front of the houses. That on the west side of the road is just under the pavement; it drains about 20 houses, but does not extend the whole length of the street; at its lower end it joins the other sewer. The sewer on the east side, draining 30 houses on that side above its junction with the west sewer, and about 10 below the junction, is said to lie several feet below the surface in its northern and lower part, but higher up it is more superficial, and it crosses under the street to drain nine houses on the west side. Six houses on the east side of the street at the south end are

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drained to the back and not into the sewer. Some of the more scattered houses at the northern end of the village are also not drained into the sewer. I have described the course of the sewers, so far as I have been able to learn it from old residents, with thus much of detail because the diphtheria has on both occasions attacked especially houses in the course of one of the sewers, viz., that which drains the east side of the village street. In 1885 seven households were attacked, four of which were in the village; of these four, three were on the east side of the main street and one at an outlying cottage in a different part of the village. In the present outbreak five households in the village had up to the time of my visit been attacked, of which four were on the east side of the main street, and one on the west side at the farther end, where the sewer crosses under the road.

In the 20 houses drained by the sewer on the west side of the street there has been no diphtheria on either occasion. A case of sore throat was seen at my visit; this was in a house exposed to the entrance of offensive drain air. Nor has there been any diphtheria in the six houses at the end of the street on the east side which are not drained into the sewer.

The position and construction of the house drains are commonly such as to allow foul air from them to enter the houses. They are built of stone, similarly to the sewers, and commonly run under the houses. Some seen had a deposit several inches deep of black stinking sediment. Rats are frequently seen in the houses.

The house occupied by H. Windsor deserves special mention. In this house a fatal case of diphtheria occurred in September 1885. In the same house three children of the same family have been taken with diphtheria in December and January 1887-8; of these, one had died, another was recovering, and another was just commencing at the time of my visit; the father also had a sore throat, but without diphtheritic deposit.

This house is part of an old farm house, which has been converted into two cottages. A passage with doors at either end runs through from the front to the back, and the houses on either side are entered from this common passage, from which they are separated only by a board or lath and plaster partition. (There are several houses of this kind in Queen Camel.) In the other house of the pair, an elderly woman, a relative of the Windsors, was found suffering from commencing diphtheria.

The drain runs under the common passage, and offensive effluvia from it come up through the chinks of the stone floor, the edges of which are bedewed with moisture from the drain air. This state of things was much complained of at my previous visit, but nothing whatever has been done to remedy it. Other sanitary defects at the same house, as dampness, smoky chimneys, polluted well-water, and offensive dilapidated privy, also remain unremedied.

The earliest of the recent cases of diphtheria began on October 25th. The patient was a girl of eight, daughter of a butcher; she attended the village school, but no history of infection from a previous case could be obtained\*. She recovered, but had subsequent paralysis of the legs. A brother contracted the disease afterwards and died. At this house the slaughter-house (which has an open-jointed flag floor) is close to the house and in covered air-communication with it through a scullery. In this scullery are a defective drain and the pump. The well failed during the past dry summer, and the first water that came in is said to have smelled very badly, like a stagnant ditch. (On cleaning it out since my visit pieces of putrid meat were found in it.)

Similar unwholesome conditions, *e.g.*, dampness,† defective drains, and polluted well water, were found at the other houses at which diphtheria occurred, as well as elsewhere through the village. Indeed, so far as defective sanitary conditions have to do with the occurrence of disease, the difficulty is to understand how it is that Queen Camel should ever be free from it.

We may, perhaps, suppose that the diphtheria poison lay dormant in the sewers until called into activity by the stirring up of the sediment by the autumn rains. The especial incidence of the disease along the course of one sewer seems to point to sewer conditions as having had a share in the

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\* I learn from Dr. Hurley that in October in a family D. the father, mother, and three children had sore throat; one girl was so ill that she had to be kept at home, but the others continued to attend the village school. The water which this family drank came from a well polluted by leakage from the drain of a house in which diphtheria occurred in the previous outbreak.

† Dr. Hurley notices that all the cases of diphtheria have occurred in thatched houses. A considerable proportion, however, of the houses in the village are thatched.





causation of the disease, but the numbers are too small to exclude casual coincidence; moreover, the other sewer is of equally bad construction and the two sewers join below.

It is stated by old residents that a foul open ditch formerly ran through the village street at Queen Camel, and that at that time fever was very prevalent in the village. After a severe epidemic of fever in the year 1836 the ditch was filled in and a stone sewer made. Since this was done fever has become rare, but sore throats have become frequent and there have been several outbreaks of diphtheria. Diarrhoea is not particularly prevalent.

There were, however, ample opportunities for the disease to spread by personal communication. In all but one of the six households attacked up to the time of my visit the first case was a child attending the National school; the exception was the elderly woman before mentioned who was living in close relationship with a family previously attacked. Of the five school children three were taken ill within a few days of each other, viz., between November 17th and 23rd. On the latter date the school was closed, and remained so until December 6th. It seems that the brothers and sisters of children who were ill of diphtheria were in some cases allowed to continue to attend school. Some of the families attacked were related and the children used to meet at each others' houses.

The milk supply of the several families came from different sources, and in two no milk was used before the illness. At one farm at Queen Camel the cows were affected with sore udders in the summer, but are said to have been well a month before the diphtheria broke out; the milk from these cows was not drunk by any of the people who had diphtheria.

At several of the houses where diphtheria or sore throat occurred the household cat was said to have been recently ill, but the symptoms differed in different cases; languor, vomiting, and cough were spoken of, but there was nothing to show that the cats' illness was of a diphtheritic nature.

Together with the cases of diphtheria there existed some cases of sore throat, not presenting the appearances of that disease, but Dr. Hurley thinks that sore throats were not more prevalent than usual (they are always frequent, he says, in that neighbourhood), and they were not followed by symptoms of paralysis. It is noteworthy that the present outbreak differs from the previous one in that most of the patients who have recovered have subsequently suffered from paralytic symptoms, whereas in 1885 none did. Dr. Hurley says that in the later cases of the present outbreak false membrane has been more abundantly developed than in the earlier ones.

So far as I could learn, the other places in the Wincanton district were free from diphtheria.

The sanitary condition of Queen Camel, as of other places in the district, requires much more attention than it receives from the Rural Sanitary Authority, with the view of abating nuisances and providing the requisites of healthy existence; nothing whatever appears to have been done in this direction at Queen Camel since my previous visit. A proper system of sewers should be provided, and the houses should be drained into this by impervious pipe-drains, kept when possible outside the houses, and with properly trapped inlets. The polluted wells should be closed, and a pure supply of water provided, as by bringing water from one of the springs in the neighbourhood. Pail privies or other suitable closets should be substituted for the old offensive vaults. In reconstructing privies or drains the old vault or drain should be emptied, taken up, and filled in with clean material. The abatement of nuisances, among which damp and dilapidated houses may be reckoned, should be enforced. In reference to these and other matters, I beg to refer to the recommendations appended to my previous report.

February 10th, 1888.

H. FRANKLIN PARSONS.

P.S.—Since writing this report I learn from Dr. Hurley that three fresh cases of diphtheria have occurred in as many houses, two in the northern part of the village (one of these being in connexion with the village sewer below the junction of the two branches; the other drained independently of the sewer) and one in an outlying hamlet. The patients were adults; they are not known to have been in communication with previous cases, but unsanitary conditions existed at their residences.

